Biodiversity Conservation at the Landscape Scale

A Program of the Wildlife Conservation Society
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Greater Madidi Landscape Conservation Area
Implementation Plan FY2006
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Program Goal
To ensure conservation of biological diversity in regions of global biodiversity importance, using a species-based landscape approach.

The Wildlife Conservation Society believes that protected areas must remain at the core of all nations' biodiversity conservation plans. These areas typically contain a higher diversity and abundance of plants and animals than landscapes managed primarily for economic use. Yet, parks and reserves are always embedded in larger, human-dominated landscapes and are seldom sacrosanct. Regardless of how large or small a protected area may be, the plants and animals it contains are often threatened either directly or indirectly by human resource use activities.

Management of parks and reserves cannot, therefore, occur in isolation from the surrounding human-dominated landscape, but must take into account where and how human activities conflict with biodiversity conservation, and where conservation adversely impacts human welfare. As human populations continue to expand over the next 50 years, the incentive for over-exploiting natural resources within and outside of protected areas will likely increase and the need for biodiversity conservation tools that address human-wildlife conflict will become even more important.

The Living Landscape Program promotes conservation of landscapes by focusing efforts on key animal species that require large areas for their conservation, are particularly at risk because they cross land use and jurisdictional borders, and when protected will have the greatest positive impact on biodiversity as a whole. These landscape species are highly mobile, vulnerable animal species, and their conservation fosters a focused and cost-effective way to retain a full complement of biodiversity and overall ecological integrity. To conserve these species, parks and reserves must be integrated into the broader landscape, a landscape in which people exploit natural areas and wild species to meet their socio-economic needs.

The BCLS Program is designed to ensure biodiversity conservation in four core sites by identifying actions to conserve landscape species, and by increasing the capacity of local and national organizations to implement such actions. The four areas of global biodiversity importance for WCS involvement and USAID activity are currently:

- Greater Madidi Landscape Conservation Area (Bolivia)
- Glover's Reef Living Seascape (Belize)
- Maya Biosphere Reserve Living Landscape (Guatemala)
- The Eastern Steppe Living Landscape (Mongolia)

Greater Madidi Landscape Conservation Area Project Strategy
The Northwestern Bolivian Andes are documented as one of the most species-rich regions of the world. This area of approximately 50,000km^2 includes a sweeping altitudinal range on the eastern flanks of the Andes. Spectacled bears, white-lipped peccaries, jaguars, and Andean condors and their habitats are partially protected by three protected areas, the Madidi National Park and Natural Area of Integrated Management, the Apolobamba Natural Area of Integrated Management (ANMI), and the Pilón Lajas Biosphere Reserve and Indigenous Communal Land. Yet these protected areas alone cannot adequately conserve such wide ranging, resource-demanding species, nor is the current capacity of the protected areas service (SERNAP) sufficient to protect the reserves. The unique biological richness of the region is threatened by unregulated land-use and

resource extraction (e.g., livestock grazing, hunting) related to colonization and road development and exacerbated by a legal/regulatory framework that is fraught with internal conflicts.

The principal project goal for the Greater Madidi Landscape Conservation Area is to conserve biodiversity through application of the landscape conservation approach. The landscape conservation approach is based on the development of spatially explicit models that represent: (a) the threats to biodiversity across the landscape, and (b) the biological needs of a suite of landscape species. Due to their extensive and heterogeneous spatial needs, landscape species often represent an extreme challenge for long-term conservation purposes. Their ecological importance also implies that their removal from a landscape will have deleterious, cascading impacts on ecosystems. WCS wishes to conserve ecologically functional landscapes and therefore we are tailoring many of our efforts to respond to the spatial needs of landscape species. A working hypothesis is that by ensuring the needs of area-demanding landscape species, much of the rest of biodiversity will also be conserved.

Although the five selected landscape species (jaguar, white-lipped peccary, spectacled bear, Andean condor, and vicuña) are famed for their extensive habitat requirements, there is a relative dearth of information regarding their basic biology as well as the magnitude of their spatial requirements. BCLS aims to ensure their conservation and the conservation of the biodiversity they represent. In the Greater Madidi Landscape Conservation Area, we are determining the spatial needs of ecologically functional populations of these landscape species, developing management strategies that include both protected areas and non-protected areas critical to their needs, and including the full participation of local people and other stakeholders in management decisions.

The integration of the biological and threat landscape models has allowed us to formally prioritize specific areas within the landscape for conservation intervention: for example, the conservation landscape helps us to identify potential corridors between large tracts of unthreatened and biologically important white-lipped peccary and jaguar habitat, and identify specific communities whose natural resource use areas overlap with critical areas for spectacled bear conservation. The threat landscape models represent an extension of the original threats analysis, and in combination with the biological models, allow us to develop a spatially explicit threats-based approach to designing and developing conservation interventions. Thus, in addition to formally identifying a given community as a spatial element of the landscape, an examination of the specific community activities also allows us to tailor interventions accordingly. In addition, we can assess the global importance of the landscape for the conservation of these wide-ranging species, as well as identify neighboring areas that maybe necessary for consideration for the long-term viability of landscape species populations.

The BCLS project has been working closely with the Tacana people to win legal recognition of their traditional territory, the Tacana Indigenous Communal Land (or Tacana TCO), which borders a large portion of Madidi protected area. By working with the Tacana, using the landscape species conservation approach, we will ensure that significant tracts of natural and semi-natural habitat will retain a high conservation value for the focal landscape species and biodiversity as a whole. Because most wide-ranging species move throughout the lowlands, sound management in the TCO will also help to maintain the integrity of Madidi National Park. At the same time, the landscape approach provides the local population with incentives to improve land-use practices and policies through the development and support of community-based natural resource management projects. Our project has also provided key technical support in the development of the first Management Plan for the Madidi protected area. Efforts will now shift towards implementation of the Madidi plan, as well as the development of a similar plan for the Pilón Lajas protected area and indigenous reserve. Appropriate integration of the Madidi and Pilón Lajas management plans is critical because of the montane forest corridor shared by these protected areas and the need to coordinate protection activities and standardize tourism regulations which involve many of the same actors.

Finally, we have taken various steps toward building integrated and participatory planning processes across several jurisdictional and land use types. This helps to ensure that the visions of local people within the larger landscape are considered in concert with conservation goals. This process is building momentum with the increasing inclusion of local government bodies in environmental management and land-use planning, as well as the development of indigenous territory management plans and territorial planning initiatives.

At an even larger scale, our project staff collaborates with WWF, CI, TNC, SERNAP and the Dirección General de Biodiversidad (DGB) as they consider efforts to augment the ecological corridor running from Madidi to Amboró National Park. We share our experiences in the landscape to develop methodologies and lessons that may be applied in a more extensive corridor.

To ensure conservation of the Greater Madidi biological diversity, the BCLS program focuses on five interrelated objectives, and a sixth objective which is the mandate of the WCS/NY Coordination Unit:

1) Measure baselines and monitor landscape species and the landscape context in which they are found;
2) Facilitate community-based natural resource management across the landscape;
3) Strengthen institutional capacity in natural resource conservation and management;
4) Promote the development of national policies that support the landscape conservation approach;
5) Elaborate a participatory, integrated landscape conservation action plan; and
6) Guide the design and testing of wildlife-focused planning.

IMPLEMENTATION PLAN: FY06

OBJECTIVE 1: Measure baselines and monitor landscape species and the landscape context in which they are found Level of Effort (Total Objective 1):

Activity 1.1. Describe the Ecological Context of the Landscape

Our team will continue to describe mammalian diversity, distribution, relative abundance, and population densities across several sites in the landscape. Camera trapping efforts, line transect surveys and other distributional inventories will provide information regarding mammalian communities, with particular emphasis on ungulates, cavimorph rodents and primates, critical for the development of sustainable hunting models for lowland indigenous groups. By the end of FY06 we will have the first analyses of mammalian abundance and biomass at a variety of lowland tropical forest sites and these results will feed into the sustainable hunting initiatives described in Activity 2.1. Related to this, we are also providing technical and logistical support to ACCA (Amazon Conservation Association) regarding their biodiversity surveys in the Pampas del Heath region of Madidi.

Activity 1.2. Research and Monitoring

Wallace and Rios will analyze data from the recent Andean Condor population survey conducted in Apolobamba. The surveys used a series of experimental carcass-viewing sites. Photographic and video material will be analyzed in order to individually recognize Andean condors and these data will be analyzed using mark-recapture software. In terms of landscape species, this represents the most pressing research question given recent scientific literature that suggests that viable populations of vertebrates require at least 7000 adults. Based on information gathered by the project to date, it is clear that this many condors do not exist in the landscape, and we therefore need a rapid assessment of the condor population in the landscape to evaluate potential shorter and longer term interventions. Similarly, Wallace and Rios will continue to explore methods of determining spectacled bear population sizes and densities through conservation genetics analyses from collected hair samples.

For white-lipped peccaries, radio-tracking efforts using a system of tree towers will enter the final year of required data at the long-term study site (Wallace & Ayala) and final analyses on home range and movements will commence. Efforts to estimate jaguar population sizes across differing vegetation and human influence zones will shift with analysis of ongoing camera trapping efforts in the Heath River in the northern sector of Madidi, as well as additional campaigns within the Tacana TCO in July 2006. Line-transect surveys in these areas and the Rio Hondo for white-lipped peccaries will supplement our population estimates (Wallace & Ayala). Genetic studies of the Apolobamba population of ca. 10,000 vicuñas, documented as having recovered over the last 25 years from ca. 100 animals, will be completed in FY06 given the concerns about the genetic vigor of the population.

Activity 1.3. Ecological Studies of Special Elements

Wallace and Martinez will complete an investigation into the distribution and diversity of the titi monkeys across the landscape. The researchers will pay particular attention to the two Bolivian primate endemics, *Callicebus modestus* and *Callicebus olallae* and to the area of Santa Rosa de Yacuma in the Beni grassland-forest. Wallace and Ayala will develop proposals for conducting surveys on the relative abundance and population size of the giant otter along the rivers of the Tacana TCO to complete a preliminary picture of giant otter abundance in the landscape. Ticona will gather scat and hair based genetic information on Andean cats, and to undertake Andean deer observations in the Apolobamba protected area. We will continue to disseminate our findings in technical papers reporting population status, habitat use and important resources for these complementary and threatened non-landscape species.

Threats Addressed by Objective 1:
Biodiversity surveys provide critical information on species richness and abundance in largely undocumented regions, thereby contributing to biodiversity databases for the landscape, as well as providing on-the-ground information about threats and related species' status. Assessing biodiversity in areas threatened by oil exploration, road construction and colonization will enable us to identify particularly fragile habitats and species and suggest mitigation measures. For example, the range restricted primate endemics of the Santa Rosa de Yacuma are threatened by the planned paving of the 'Northern Corridor'. Our research is being provided to relevant decisions makers and the environmental mitigation team, and these titi monkeys may well become the flagship for municipal efforts to establish a municipal wildlife reserve around he Yacuma River, the most important eco-tourism destination in the region at the moment. The biodiversity assessments will also represent the baseline for monitoring the success of any subsequent intervention designed to address specific threats. Preliminary assessments of tree, avifaunal and mammal communities have provided management information to protected area administrators, including baseline data for future monitoring programs. Assessments have been critical for zoning purposes in the new management plans for these protected areas. For example, our efforts at the incredible Alto Madidi site are stimulating discussions with otherwise reticent municipal authorities regarding the establishment of a municipal reserve to protect the non-protected side of the Madidi River at this site. In addition, support to thesis projects increases local technical capacity.

Increasing our monitoring and collection of ecological data for our landscape species will allow us to continually improve the biological, threats and conservation landscapes which form the core of the landscape conservation approach, reducing the number of assumptions currently used to design these landscapes. In addition, information regarding landscape species' abundance and home ranging requirements will assist us in establishing reasonable landscape population estimates and thereby assess the global importance of the landscape for the conservation of these species. Baseline ecological studies will reveal if we need to expand activities into adjacent wild areas to protect a minimum viable population. In turn, we will be better equipped to identify and mitigate current threats to the health and survival of landscape species and the biodiversity they represent, including habitat degradation or loss, hunting and fishing. Further, we will be better able to predict and prevent future conflicts between landscape species and increasing human activities, which include livestock predation and crop damage in the highlands.

Distribution maps of landscape species combined with spatial analyses of existing and potential threats to the landscape will enable us to identify critical areas for conservation action. These maps will also provide a distributional baseline for managers of the three protected areas and neighboring indigenous communal lands. By incorporating park guards into this activity, we are also providing a series of training and motivational opportunities for protected area staff. Similarly, training of Tacana community representatives will build interest and capacity for further Tacana participation in conservation efforts.

Species in addition to landscape species: Andean cat, Andean deer, Yungas brocket deer, Bolivian swallow-tailed cotinga, Yungas woolly monkey, short-eared dog, bush dog, giant otter, maned wolf, marsh deer, and various endemic titi monkeys are all either globally threatened or have an unknown taxonomic status. Additionally, all have very narrow habitat requirements and are, therefore, particularly susceptible to habitat degradation and loss. Information on the conservation status of these species will indicate the health of those species and habitats we consider special elements of the landscape. Our research has already established that Madidi should be considered a regional stronghold for white-lipped peccaries, jaguars, spectacled bears, giant otter, Andean condors, and marsh deer. Given this regional importance, special management considerations are required for these species.

Building this information into conservation plans and management for Madidi, Pilón Lajas and Apolobamba protected areas will help to address weaknesses in both the capacity to conduct research and the administration of these conservation and management units.

OBJECTIVE 2: Facilitate community-based natural resource management across the landscape

Activity 2.1 Community-based Natural Resource Management
Many of the community projects have assumed a supra-communal nature, as projects have expanded to additional communities. This result in itself is a reflection of the power of these community-based projects and for most initiatives this multi-community involvement is critical in terms of market development and sustained long-term production capacity. Our second-phase support concentrates on strengthening participatory mechanisms and informed decision-making about the management of natural

resources and distribution of obtained benefits, as well as the development of 'scale-up proposals' for direct funding to local, established initiatives from national and international sources. First phase 'start-up' support for interested communities has typically included introductory workshops on wildlife management, as well as participatory meetings to design a community-based appraisal of their natural resource management needs and interests.

The native bee honey production initiative will take new steps toward sustainability, with the project team (Tejada, Gomez, Wallace) providing technical support. Operational costs will shift largely to a PUMA (Fundación para la Protección y Uso Sostenible del Medio Ambiente) grant to be received directly by CIPTA (Consejo Indígena del Pueblo Tacana) and the Native Honey Bee Production Association, created with technical support from the BCLS. Originally, with our support, CIPTA and the Santa Fe and San Pedro communities won a grant from the Bolivian government's Biocommerce program. Unfortunately, despite formal approval, this grant never materialized as the Biocommerce undergoes institutional restructuring. CIPTA and the BCLS team responded by successfully applying for PUMA funding and this will come on-line in the next month. The community-based project itself will shift into a more commercial mode as opposed to local use and sales, with initial production targeted for the Rurrenabaque, San Buenaventura and Ixiamas tourism markets, and will also engage two more communities: Tres Hermanos, a recent recipient of a competitive community grant (see below), and Santa Rosa de Maravilla. In this way we will be supporting an increase to 500 producing boxes in order to achieve 245 Kg/year, equivalent to 3100 US$ by 2006. This would be spread across the 34 members and will represent 28% of their annual income, after payment of 8.5% of profits to the community and association fund.

We will continue giving technical support to community assessments of subsistence hunting by seven communities (Carmen del Emero, San Antonio del Tequeje, Cachichira, Ascuncion del Quiquibey, Esperanza de Enapurera, Villa Fatima, and San Pedro). In FY06, results from harvest models will be verified and triangulated with data on three other variables: for both peccary species age-sex structure analyses derived from collected skulls; for all species catch per unit effort analyses; and for all species variations of mean and modal distances from the community of hunted animals. This year this information will be pulled together and presented and discussed at a TCO-wide wildlife management meeting. The main objective of the meeting will be to develop a TCO-wide wildlife management plan, thereby engaging the remaining Tacana communities in wildlife management efforts. For those communities that have been participating for several years, the project team (Llobet, Gomez, Lara and Wallace) will assist the communities in the development of control mechanisms for resulting wildlife management decisions, such as restrictions on hunting quotas for known locally threatened species. These control mechanisms have already been discussed and outlined in more general terms within the context of the natural resource management regulations (see Activity 2.3), and will include control and vigilance strategies, community sanctions, and the role of communal authorities in ensuring that sanctions are adequately implemented. Monitoring of these control mechanisms will permit the assessment of the effectiveness of recent community decisions regarding shifting hunting pressure to less threatened prey species as opposed to over-hunted species such as tapir, spider monkeys, howler monkeys and marsh deer.

Our team (Llobet, Gomez, Wallace) will also work with CIPTA and the communities of the lower Rio Beni (Cachichira, Villa Fatima, Esperanza, Tequeje, Carmen del Emero) in the submission, for formal approval from the Dirección General de Biodiversidad (DGB), of a finalized management plan for the sustainable harvest of the spectacled caiman in the Tacana TCO. Although this management plan was completed last year, political decisions within the DGB precluded a first approved harvest quota for the Department of La Paz, and therefore the management plan was not formally submitted last year. The DGB has indicated that in 2006 there will be an approved harvest quota for La Paz Department, and the management plan will be formally submitted by CIPTA in the next two months. CIPTA considers the management of caimans at the TCO scale as another potential model for testing the internal control and regulation mechanisms surrounding natural resource management, and the CIPTA management plan will be one of the first complete local management plans for spectacled caiman in the country.

The BCLS team (Miranda, Gomez, Wallace) will build on preliminary results to evaluate the potential for ornamental fish production and management in several Tacana communities, in coordination with the Natural Resources office of CIPTA. In FY06, this will include the identification of species and color forms of ornamental fish present in the River Beni and its northern La Paz tributaries, as well as preliminary steps towards a sustainable management plan for this resource. Ornamental fish represent a potential high value natural resource in the region, and to date Bolivia remains one of the few Amazonian countries that does not have a flourishing business. WCS and the Tacana have been approached by a potential Bolivia-based supplier of ornamental fish to the North American and European markets. This potential supplier is negotiating export permits for ornamental tropical fish, but first the Bolivian government requires there to be an approved management plan by an association

of tropical fish producers. After an initial meeting with the DGB (Dirección Nacional de Biodiversidad), and determining that the Beni watershed contains many potentially marketable species, CIPTA is interested in establishing the sustainability of this activity. Hence as a first step to address this opportunity we will work with CIPTA to develop a management plan for the most promising ornamental fish species. Preliminary surveys have produced encouraging results with several interesting color forms and possible new species, including an apparently abundant cichlid species, as well as several scarcer yet striking catfish species. This year efforts will scale up, and in partnership with the Bolivian Faunal Collection a list of potential species will be produced, with accompanying digital photographs of live and collected specimens, as well as relative abundance indices and habitat details for each species. By the close of FY06 the team will have a first draft of a management plan for this natural resource.

Following the completion of a tourism strategy for the Tacana TCO scheduled for approval in late October 2005, the BCLS team (Lara, Caballero, Painter, Gomez, Wallace) will work with CIPTA to identify potential funding sources for the gradual implementation of this strategy based around community eco-and ethno-tourism in the region, and initially prioritizing: the San Miguel del Bala eco-lodge, Laguna Moa tourism camp, Tuichi River tourism camp, and Tumupasha's cultural and scenic qualities.

With support from the MacArthur Foundation, we (Briançon, Gomez, Painter, Wallace) are working with three communities in the montane forests of Madidi (Virgen del Rosario, Pata, and Santa Cruz de Valle Ameno) to implement a sustainable harvest program for the incense collectors. We are mapping incense stands used by these communities, estimating their density and potential production, and have already produced draft management plans for two of the communities, with a third plan scheduled for completion by the end of FY06. These experiences have been shared with the nascent incense user association, and over the next year we will be working with the communities and the association to increase the number of communities interested in producing sustainably harvested incense, as well as promoting management planning in other communities of the association. Already volunteer marketing students are developing a more aggressive marketing campaign for higher prices and exploring possible export opportunities to France. The Association, is nascent, however, discussions area anticipated on how to ensure that only sustainably harvested incense benefits from possible marketing campaigns, and this may be through a registered list of incense collectors in the Apolo region.

Finally, our project staff (Lara, Gomez, Llobet, Tejada, Wallace) will provide logistical, financial and technical support for five community natural resource management projects that have been selected in a second competitive round of assistance grants, based on CIPTA's sustainability criteria The five projects that have received funding are: native honey bee production in Tres Hermanos, the San Pedro wildlife reserve, paca (*Cuniculus paca*) sustainable harvesting in Cachichira, Tumupasha eco-tourism trail, and Tumupasha wild chocolate production. Implementation of these projects represents significant steps in the process of community capacity building for natural resource management initiatives. Funds for these projects are being disbursed according to the approved budget and log frame detailing project activities.

Activity 2.2 Community Mitigation of Human-Animal Conflicts

The project team (Zapata, Gomez, Wallace) will work with five communities (Cañuhuma, Medallani, Caalaya, Lagunillas, and Curva) in Apolobamba to monitor family-level corrals for nocturnal livestock protection. This represents a community-based solution to human-animal conflicts. In each of these communities, the WCS team is working with community members to document the amount of livestock owned by each family and monitor losses across the year. In FY06, we will supplement local participation by training park guards to recognize predator-related livestock loss. We will also expand our assessment of local people's attitudes towards wildlife/domestic animal management across the broader Apolobamba region using questionnaires. Finally, staff person Zapata will provide veterinary council to the five target communities, given that to date livestock disease is responsible for far more losses than wildlife predation. Critically, this support will be provided in conjunction with the protected area, through park guard participation, and the activity will also be linked to educational information on wildlife conservation and the importance of the protected area.

Activity 2.3 Land Tenure and Territorial Planning

The land-titling process for the Tacana TCO is drawing to a close, with 325,327 hectares titled to the Tacana management organization (CIPTA) in July 2003, and a further 46,600 ha of prioritized areas titled in June 2005. With financial and administrative support, our Tacana legal team (Alejandro Guardia) will turn to helping the Tacana gain title to the final ca. 34,000 ha of lands with conflicting ownership that are still formally owed to the Tacana.

In addition, the legal team will continue to support CIPTA in the legal consolidation of a second territorial demand from the Tacana TCO to the north of the Greater Madidi Landscape. CIPTA presented this second TCO demand to address the territorial needs of four communities settled on the Madre de Dios River. These communities represent key allies for Madidi protected area in this isolated region. Their territorial demand includes forest and natural savannas, which are a complement to the Pampas del Heath savannas found within Madidi. Ongoing BCLS team activities will be analyzed and published in this period as a Natural Resource Management Strategy for this second TCO, and will include results from Participatory Rural Appraisals, censuses, and participatory zoning maps.

In FY06, the project team (Lara, Moscoso, Tejada, Gomez, Wallace) will assist CIPTA in the approval of the formal 'Territorial Plan' to the Agriculture Vice Ministry, as another necessary step in the formal consolidation of the Tacana TCO. This plan and the accompanying maps are products of the micro-zoning of the Tacana TCO carried out in FY2005. In addition we will complete the micro-zoning process for three communities that for various reasons were unable to participate in the process in FY2005. CIPTA and WCS will continue to work with the 20 communities that make up the Tacana TCO to discuss and design the concept of 'communal areas', such that each community will be responsible for the management and control of a section of the Tacana TCO. This does not imply ownership by a single community as the entire TCO is titled in the name of the 20 communities, but does imply responsibility by a single community for control and vigilance over its area. It is hoped that the activities of community members and natural resource user groups will form the basis of a control and vigilance strategy, so user groups and community members will represent the "eyes" of CIPTA on the ground. Similarly, the project team will assist members of the CIPTA directorate in the design and implementation of a monitoring and evaluation system for communal natural resource management projects, including the degree to which the regulations that have been designed by communities are implemented and sanctioned. The system will include indicators and control mechanisms based on criteria and principles of sustainable natural resource management developed within the context of the Tacana TCO and by representatives from the 20 Tacana communities. Thus by the end of FY06 we will have established monitoring and control plans and implementation of these plans, as well as identified sanctions will have begun in a subset of at least four communities within the Tacana TCO.

Activity 2.4 Environmental Education

Over the next year we will be producing a series of manuscripts describing the lessons learned to date in our landscape, as well as a series of posters, booklets and brochures for local distribution to urban centers such as San Buenaventura and Rurrenabaque and rural communities, highlighting the importance of the Greater Madidi Landscape and its wildlife.

Threats Addressed by Objective 2:

Community-based natural resource management projects are critical for the long-term conservation of biodiversity within the landscape, as they promote the concept of natural resource conflict mediation at a local scale, improve the capacity of local people to design and execute natural resource management projects and, most critically, promote community-based decision-making processes, with internal regulations and controls for natural resource management - including wildlife.

In the highland portion of the landscape, human-animal conflicts frequently prevent communities from recognizing the benefits of forests and biodiversity. Instead, their perceptions center on the problems they see originating from the forest. This creates the need to document, measure and develop solutions to key human-animal conflicts. An evaluation of the extent and distribution of crop damage and livestock loss, as well as of its perception by local people, is the basis from which possible solutions to this problem can be proposed. Demonstrating an interest in these conflicts and working toward sustainable solutions will improve local peoples' perception of wild places and protected areas, reducing direct pressures on identified problem wildlife species, as well as habitat destruction and corresponding declines in wildlife populations and biodiversity in general. The information gathered will also contribute to a better understanding of human-environment interactions in the region, while building national and local capacity to conduct applied conservation research and natural resource management programs.

In the lowland portion of the landscape, a natural resource management strategy will promote productive economic options that are compatible with long-term sustainable management of the Tacana territory, thereby stabilizing the eastern forest boundary of Madidi protected area. The Tacana land-use plan enables zoning and enforcement to prevent both colonization and inappropriate land-uses. Approved internal control and regulation mechanisms will strengthen CIPTA and help ensure sustainable resource management. Discussions of benefit and profit distribution will further encourage the notion of long-term financial planning and

equity within the natural resource user groups as well as CIPTA. In addition, these steps will help stress the collective nature of the TCO land title and the need to consider the long-term sustainability of activities beyond the needs of a single community.

Legal tenure within protected areas, as well as for indigenous communal lands, is a necessary first step toward sound natural resource management. One of the largest obstacles for appropriate management outside protected areas is the lack of clarity regarding limits and responsibilities over the management of a given area. The planning and zoning processes realized in the framework of the Tacana TCO Strategy and the Madidi protected area management plan consider the needs of the local population as well as those of biodiversity.

The zoning process includes actual and predicted areas of use by communities. However, there is still lack of clarity regarding land tenure in the Apolo region of Madidi and in the Apolobamba protected area, because the legal titling process halted following political unrest and a conflict regarding political limits of Apolobamba.

Our project staff will also work to change attitudes toward destructive land-uses and the sometimes negative perception of protected areas, by strengthening the ability of teachers to convey critical information regarding the costs and benefits of unplanned natural resource use to their pupils. For the Bolivian population in general, posters and informative radio shows will also transmit the value and purpose of the Madidi protected area and the Tacana TCO, along with information regarding local natural resource management.

OBJECTIVE 3: Strengthen institutional capacity in natural resource conservation and management.

Activity 3.1. SERNAP Institutional Strengthening

SERNAP is charged with the management of the National System of Protected Areas (SNAP), developing policies for the protection of ecosystems, biodiversity and natural resources. One of the characteristics of the SNAP is that it contains a variety of human populations with diverse interests and a high dependency on natural resource use. These characteristics result in a variety of social problems that have a direct relationship with the environment and which can under certain conditions produce environmental conflicts. Many of these conflicts have been managed in an unplanned and almost intuitive manner, which has not fostered successful conflict resolution. Following a SERNAP request, WCS (Calvet, Painter) is providing technical support in the implementation of a Conflict Management Strategy for the SNAP, which was developed with previous USAID Bolivia resources with the objective of developing mechanisms to prevent, manage and resolve emerging environmental conflicts arising within protected areas among local actors. WCS (Calvet, Painter) will initially concentrate on the development of internal information management mechanisms, including appropriate information flow from the conflict monitoring database within the organizational structure of SERNAP as part of the Conflict Management Strategy as an instrument for conflict prevention and resolution. All protected areas in the system have had the conflict monitoring database installed in their offices, and we will provide SERNAP with assistance to analyze this information system wide. Other aspects of the Conflict Management Strategy will be implemented by SERNAP through other partners.

Activity 3.2. Protected Area Support and Staff Training

This year BCLS staff person Lilian Painter will be completing the Pilón Lajas management plan that is now in the final writing phase. The Pilón Lajas strategy must conform to SERNAP requirements, as well as the site-specific demand of being both a protected area and indigenous communal land of the Regional T'simane and Moseten Council. WCS will also continue to provide technical support to Madidi Protected Area to carry out the tourism program set out in its management plan. This support largely takes the form of a specialist contracted as the Tourism Program Coordinator for the protected area, funded by MacArthur. As a result of this process and reformulation of projects by BCLS staff person Jazmin Caballero, resources will be channeled for the implementation of training events and infrastructure investment through other funding (by KFW's BIAP project to SERNAP through FUNDESNAP - the national fund that supports SERNAP).

Painter, Gomez, Calvet and Wallace will develop research regulations for Madidi and Pilón Lajas and develop an information management system to permit ease in the use of monitoring and research information in the strategic planning and every day operations of the protected areas. Finally, at the request of Madidi and Pilón Lajas, we will develop a research priorities portfolio for each of these protected areas. We will also provide Madidi and Pilón Lajas protected areas with necessary legal support to follow actions against timber and hunting infractions in the Caranavi court. This is a response to conflicts caused by a history of impunity to environmental legislation, formerly by local power groups and now most recently in alliance with municipal

authorities of San Buenaventura and Ixiamas.

Activity 3.3. Wildlife Management Program (Institute of Ecology)
We will continue developing and co-organizing the now-institutionalized Journal Club, support student theses, and provide work experience projects with the Institute of Ecology and in coordination with the Biology Department Faculty of the UMSA University. The journal club aims to promote critical thinking among Biology students, as well as Department and Institute staff. This forum also fosters discussion of current themes in conservation biology, ecology and behavior. This fiscal year we will be supporting at least three undergraduate thesis students. This contact with the local university is also a way for us to identify potential thesis students or young professionals to join our conservation efforts.

Activity 3.4. Monitoring Strategy Implementation
Last fiscal year the project team (Painter and Gomez) finalized a realistic and responsible monitoring strategy for the Madidi protected area, based on surveillance activities by protected area staff. This strategy is currently under implementation after final approval by the Environmental Monitoring Department of SERNAP. In FY06 we will provide assistance in data entry linked to a GIS system, incorporating conflict monitoring and analyzing the results gathered. This support is being provided by staff person Humberto Gomez, who participates in the technical council as technical coordinator of the Madidi protected areas's research and monitoring program. Pilón Lajas will receive technical support from the BIAP monitoring specialist Daza. However, we hope to promote joint analysis of the monitoring data between Pilón and Madidi. Furthermore, additional funds from the MacArthur Foundation will also permit us to promote collaboration in monitoring and sharing of methodologies between Madidi and the neighboring Peruvian areas of Tambopata and Bahuaha Sonene.

On the basis of conceptual models developed for each activity, identification of key indicators, and our newly-structured internal information management system, we will monitor our interventions and link them to our activity based accounting. We plan to back-track our financial investments for the last 6 years in order to quantify investments and link them to conservation results. We will continue monitoring threats to the landscape through interpretation of satellite imagery, particularly the advance of the agricultural frontier, identifying factors associated with higher rates of habitat loss such as roads and population size. By developing this internal capacity we will later be able to promote a similar initiative within Madidi and the Tacana TCO initially. This is necessary to improve their capacity to link interventions to results and avoid conflicts due to misinformation.

Activity 3.5. CIPTA Institutional Strengthening
A crucial element of the Natural Resource Use and Conservation Strategy for the Tacana TCO is to develop a governance plan and build the capacity of CIPTA to respond to the technical and administrative challenges of managing the TCO. Our project team (Wallace, Lara) will continue to assist CIPTA in implementing the institutional processes developed during the previous fiscal years, such as activity planning, budget development, and communication and general meetings. In addition, we (Lara, Berrios, Rosas) will continue to conduct short administration courses in administration for CIPTA staff, community representatives, and critically for members of the different user groups that are forming across the TCO in order to manage finances and a diversity of natural resources (see Activity 2.1). These courses are accompanied by ongoing administrative support to natural resource groups as required. An efficient and transparent administrative and accounting system will assist CIPTA and the natural resource user groups in attracting direct financing for management activities from local and international donors, as well as safeguard the communities, CIPTA and the TCO from financial mismanagement.

Over the last four years CIPTA has made significant progress in its organizational and administrative capacity, and we are expecting the emergence of a plethora of natural resource management user groups or associations, perhaps as many as 20 to 30, all of which will be established under the CIPTA banner. In this light, CIPTA and our technical team have identified communication and organizational capacity as a major priority. The CIPTA directorate is well aware of the need for developing capacity across the institution, and in the context of the emerging organized user groups, community forestry initiatives, fishing associations, etc., this need will be even greater. Lara will also focus on building local democracy through the development of appropriate civic education materials such as booklets, standard presentations and local radio transmissions regarding citizen rights and the legal framework for natural resource management. This activity also supports conflict management by clarifying legal rights and responsibilities.

In addition, WCS (Lara, Guardia, Wallace) will work with CIPTA to provide legal training and technical council to the natural

resource initiatives and associated user groups within the TCO through programmed planning and review quarterly meetings and additional specific workshops. This will be particularly relevant for the USAID-funded forestry and native bee honey production initiatives in the Tumupasa and Ixiamas areas. It will also apply to wild chocolate management, ecotourism, and handicraft initiatives that span the TCO, as well as potential new initiatives such as ornamental fish harvesting and vanilla production. This is particularly important as more natural resource groups begin to formally develop small business ventures in the TCO.

Activity 3.6. Local Government Environmental Planning and Management Support
The project team in coordination with the Madidi and Pilón Lajas protected area staff and CIPTA will expand dissemination of their respective management plans at the municipality level, to both municipal councils and vigilance committees (civil society bodies consisting of community or neighborhood representatives charged by the Popular Participation Law with overseeing municipal management). We will facilitate workshops to discuss the Madidi Management Plan in San Buenaventura and Ixiamas municipalities, we will also present the draft Pilón Lajas management plan to Rurrenabaque, San Borja and Palos Blancos. This year we will work with CIPTA to update the Tacana I TCO Natural Resource Use and Conservation Strategy, develop a strategy for the Tacana II TCO and present both initiatives to the municipalities of San Buenaventura and Ixiamas. .

Whenever partners are developing protected area, municipal and departmental management plans and annual work plans, we will stress the importance of integrating environmental variables with socioeconomic and cultural variables. This was already done in the case of Madidi protected area and is being done for Pilón Lajas protected area. We anticipate that Conservation International will request support for the development of the San Buenaventura and Ixiamas Territorial Plans that they are due to begin in the next trimester. As a result of these experiences we also hope to encourage SERNAP to assume a grater leadership role in defining key principles for conservation organizations developing environmental management strategies around protected areas, for example representativeness and legitimacy of the process, respect for the protected area unity represented by a single management plan, protected areas connectivity needs and others.

We will promote the creation of municipal reserves around Alto Madidi in Ixiamas and the Yacuma River in Santa Rosa. In the first case we will showcase the importance of the area for conservation and its potential as a tourism attraction, on the basis of the impressive wildlife encounter data we have recently gathered. Through complementary MacArthur funds we will support the development of basic tourism infrastructure and carry out initial information workshops with local stakeholders in Alto Madidi. During this year we will also look for funds to permit the development of a municipal reserve management plan for the Alto Madidi region focusing on institutional and administrative aspects. Thus, we will be discussing how to manage this reserve for tourism for the benefit of the municipality, establishing which local actors need to be involved and how to ensure that funds are managed transparently with municipal participation. With regards to Santa Rosa, we will coordinate with Conservation International and provide biodiversity knowledge of the area. In particular, we will provide information on presence of endemic titi monkeys, as well as information from our GIS database, to promote a similar process of municipal reserve creation.

Threats Addressed by Objective 3:
By promoting threat assessment as a critical tool for adaptive management strategies within institutions, we will strengthen the protected areas administrations and the CIPTA directorate. In addition, results from threats assessments will contribute to the developing Pilón Lajas and Apolobamba protected areas' management plans and will strengthen SERNAP relationships with other important stakeholders. By strengthening the ability of municipalities to participate in landscape conservation planning, we will promote appropriate land-use, and avoid conflicts with municipal development plans on such conservation initiatives as road building and colonization. Analyzing and addressing conflicts in the northern La Paz region will enrich our 'threats and opportunities' analysis and will also provide insights into the management of these and future conflicts. A better trained park guard corps will also provide an early warning system and monitoring tool for other more direct threats such as mining, hunting, disease, fire and unregulated tourism that can result in habitat loss or declines in wildlife populations.

A monitoring strategy is a vital ingredient of adaptive management. Increasing the capacity of SERNAP, CIPTA, and the Institute of Ecology to design and implement monitoring strategies will improve protected area administration and natural resource management. Performance monitoring will allow management agencies to strategically modify the design and location of their interventions. It will also hone in-country technical capacity to evaluate, support, propose and implement wildlife management.

Successful management of the TCO is dependent on CIPTA continuing to adopt a democratic and participatory natural resource strategy. A critical aspect of this challenge is the development of legally, technically and administratively sound natural resource user groups and formal associations as a means of ensuring sustainable economic activities for communities and local people. Such a strategy will allow CIPTA to engage support of its local constituency and relevant national institutions, therefore increasing its capacity to implement management actions, integrate its land-use vision into a landscape context, and promote the conservation of biodiversity. An efficient and transparent administrative system will guarantee the standing of CIPTA with donors and constituent communities alike, and help to ensure a future of sound natural resource management.

OBJECTIVE 4: Promote the development of national policies that support the landscape conservation approach.

Activity 4.1. Technical and Policy Support

During FY2006, the BCLS team will continue giving technical advice and support for developing regulations regarding management of natural resources within protected areas. More specifically, we expect to assist in the completion of regulations for sustainable natural resource use in Madidi, in particular through our pilot activities with incense and our support to the tourism program. Through our participation in the Technical Committee of Madidi, we will be completing regulations for research activities. These protected area-specific regulations will in turn contribute to the development of national level regulations, given that they will be some of the first of their kind in the nation. We will assist SERNAP in further developing Inter Institutional Committees as a protected area level counterpart to the national level effort to create a basket fund between the different bilateral aid agencies. Madidi's Inter institutional Committee is the most functional and it is important to strengthen it and promote similar initiatives in other protected areas. One key space through which we will be able to incorporate this experience is through the process of developing the Strategic Financial Plan for the SNAP which is being developed under the technical leadership of FUNDESNAP, to which we are lending technical support.

We also plan to build on the support we have provided the Association of TCOs around Madidi in developing a proposal for co-management of the protected area and provide SERNAP with guidelines to develop clear benchmarks to describe processes of increasing the responsibility of management committee with regards to different aspects of protected area management.

In addition, at the request of SERNAP we will provide additional technical follow-up to the consortium contracted for development of the Master Plan and the Institutional Plan for Bolivia's protected area system. The conflict management strategy and the environmental education and outreach strategy we have developed with SERNAP will be key inputs for both these planning instruments. We already provided similar support in the development of the GAP analysis which included analysis of connectivity needs between existing protected areas. At the request of the DGB, WCS (Llobet, Gomez, Painter, Wallace) will continue to review the final drafts of a series of regulations relating to biodiversity conservation and natural resource management. In FY06, for example, the national wildlife regulation, a national regulation for vicuña management, and modifications to the national regulation regarding spectacled caiman management will be ready for review.

Activity 4.2. Financing Mechanisms

In FY 2006, we will continue to assist CIPTA and the Tacana TCO in the development of proposals to finance their Natural Resource Management Strategy. Last year they were able to secure funds form the PUMA foundation to strengthen the native bee honey producer's association, this year they will build on this relationship and produce a larger package which will either concentrate on tourism or timber management through the communal associations. This is a critical element of our institutional strengthening plan for CIPTA. We are also exploring long-term financing mechanisms, including assisting them in the development of relationships with other institutions and international donors. For example, the development of administrative capacity is fundamental in order for CIPTA to receive funds directly from donors such as PUMA (Fundación para la Protección y Uso Sostenible del Medio Ambiente) and Proyecto LIL Indigena of the World Bank (see Activity 3.5 in CIPTA Strengthening).

Activity 4.3. Threats Assessment Working Group

In general, we discuss and analyze threats to the area in three forums: the inter-institutional committees of Apolobamba, Pilón Lajas and Madidi; the Coordination Committee for the Amboró – Madidi Corridor (CCCAM); and in the Management Committee of Madidi protected area. This year we will assist the Conservation Strategy Fund in presenting and disseminating the results of their economic evaluation of the costs and benefits – both local and national - derived from the Madidi protected area and also of the road proposals. This cost-benefit analysis will compare investment required to build the Apolo-Ixiamas road and compare its impacts to similar investment in alternative social infrastructure, including health, education and support for sustainable

productive activities. We will coordinate with CSF to produce and disseminate information materials among local stakeholders and municipal authorities.

We will continue supporting CIPTA and Madidi and Pilón Lajas administrations with legal advice so they may pressure the relevant authorities to enforce the current legal framework. In particular we will help them address issues related to illegal gold and timber exploitation, and in the case of the TCO deal with illegal settlements. The impunity of corruption among local authorities represents the greatest obstacle to appropriate resource management in the region.

Threats Addressed by Objective 4:
The Inter-institutional Committees that ensure coordination among different actors in the area will strengthen protected area administrations. Work of these committees will also strengthen local and regional communication frameworks and local government administrations, specifically in terms of land-use planning and conflict management and resolution.

Long-term financial stability is required for central government, municipalities and local organizations to implement landscape conservation activities. Strengthening these stakeholders' financial stability is a necessary component of building their capacity to manage the area. Financial considerations are also a critical component to a long-term vision of sustainable development for the region.

Wildlife and Non-timber forest product use regulations are necessary both at the protected area level and the national level in order to improve management of existing harvesting activities and also in order to promote new productive activities which are compatible with biodiversity conservation; thus, they respond to direct threats of over harvesting as well as to habitat loss which results from the lack of alternatives to destructive and unprofitable slash and burn agriculture.

Support to Bolivian Protected Area Service efforts to develop a Financial Plan (PEF), an Institutional Plan (PI) and a Master Plan are extremely important to address major inefficiencies in the system, largely related to an inefficient centralized organizational structure. Additionally, these instruments will identify the path to ensure the appropriate contribution of the protected area service to the conservation and sustainable development objectives.

OBJECTIVE 5: Elaborate a participative, integrated landscape conservation action plan.

Activity 5.1. Integrated Landscape Conservation Action Plan and associated Stakeholder Workshops
The second edition of the Integrated Landscape Conservation Action Plan is delayed and will be published by the end of FY2006. This document will include more detailed environmental planning experiences, thereby creating a 'living' library of relevant landscape conservation planning documents. The document will review mechanisms to integrate multiple, spatially distinct land-use planning initiatives into an overall landscape conservation strategy: for example, community and inter-community zoning, TCO land-use plans, protected area management plans, local government development proposals, and multiple-municipality planning. In upcoming editions, private land management plans and those of forestry concessions will also be analyzed.

Threats Addressed in Objective 5:
Conflicts between local development plans and conservation plans will be identified, and appropriate stakeholders and actions necessary to address them outlined. SERNAP's ability to promote biodiversity conservation outside protected area boundaries will be strengthened. Our inter-institutional coordination efforts will also assist in the monitoring of direct threats and the development of a long-term, coordinated vision of conservation and sustainable development on a regional scale. By identifying key gaps in activities and funding, we will help to make sure that all threats to the landscape will be properly addressed. This holistic view will increase integration and coherence in conservation and development planning documents and processes across the landscape, thereby improving likelihood of long-term success in both

Objective 6: New York Coordination Unit Strategy: Guide the design and testing of wildlife-focused planning, implementation, and evaluation tools for effective conservation at a landscape scale, and promote learning across sites and beyond

The NY-based Coordination Unit (CU) of the program is designed to develop and test wildlife-focused, landscape-scale approaches to biological conservation across multiple sites. To ensure the widespread utility of these new conservation approaches, the program is testing them within landscapes that encompass a diverse array of ecological features, land-uses, resource-use issues, and jurisdictional arrangements. To develop new approaches, facilitate and harmonize testing and implementation among these core sites, and capture the synergistic benefits of diverse experiences, a central coordination unit is charged with designing and managing the program. This unit guides development of landscape-scale conservation strategies, tools and techniques; assists in the design and development of cost-effective intervention and monitoring programs at these sites; promotes cross-site learning; and ensures communication among the sites, WCS staff (central and field), USAID (DC and missions), and the larger conservation community.

During FY06, the priority for the Coordination Unit will include continuing to work with field sites to further develop their conservation landscapes, and providing assistance to the process of building monitoring frameworks from conceptual models. We have now refined and simplified the process for selecting landscape species, including development of software as a decision-support tool for analysis, and during the next year, we'll develop and disseminate a 'how to' manual that will accompany the selection software. Also, based on the results from the ongoing review of the landscape species approach, we'll write up a rules of thumb document on the appropriate conditions for the use of the approach.

Activity 6.1 Provide technical assistance to site-based conservation

Members of the NY Coordination Unit will provide technical input to field site operations detailed in the previous sections of this report.

Results/Outputs:
Focused and timely technical assistance and collaboration provided to field sites based on needs, leading to conservation landscape strategies, target monitoring of effectiveness, and processes in place to increase participation of stakeholders.

Activity 6.2 Design, implementation, and testing of decision support tools

Activity 6.2.1 Living Landscapes Program technical manuals
The Living Landscapes Program will continue to produce brief how-to guides, called Technical Manuals, after field testing and fine-tuning the methods at several WCS field sites. In FY06, we will finalize and disseminate three technical manuals that are currently in review: Building Monitoring Frameworks from Conceptual Models; Conducting Household Surveys; and Building Biological and Human Landscapes. We will also produce a technical manual on selecting landscape species. The manuals are designed to provide clear and practical instructions to field practitioners on implementing a number of conservation tools. The manuals will also be translated into Spanish and French, and disseminated to WCS projects, partners (government, NGO and local), and other conservation colleagues.

Activity 6.2.2 Landscape Species Approach progress

6.2.2.1 Building Conservation Landscapes
In May 2005, at the LLP Annual meeting, 7 landscapes presented their preliminary conservation landscapes (i.e., maps of conservation priorities) and methods for making them, including how they incorporated biological and threat information. We concluded that while Biological and Threats Landscapes were vital information for choosing priority areas, how these 2 pieces of information should be weighted against one another (e.g., protect high value, low threat habitat first or high value, high threat) is still unclear, and may differ depending on the conservation context. Additional information may be necessary to make practical decisions on where conservation activities should take place, such as cost of conservation activities, urgency of the threats, probability of success, history of the project, and opportunities.

Over the first half of 2006, LLP staff in New York will continue to refine methods for building conservation landscapes, based on what we learned at the annual meeting. By January 2006, we will have drafted a Technical Manual on building conservation landscapes that describes the various types of spatial information that could be used in prioritizing areas, and suggests options for incorporating this information into a final map of priorities (e.g., simple rules, use of decision support software such as Marxan). By the end of FY 2006, we will have distributed this draft manual, asked 3-6 sites (Guatemala,

Adirondacks, Madidi, Glover's Reef) to use the manual and make new or refined conservation landscapes, and finalize the technical manual based on the experiences of these sites.

6.2.2.2 Review of the Landscape Species Approach
Review of the Landscape Species Approach (LSA) will continue during this fiscal year. An assessment of the use of LSA tools - amount of time spent on landscape species selection, level of participation in doing threats assessment, etc – will help us draw some principles to be able to advise others on the utility of the approach, its individual steps, and the conditions under which it may or may not provide advantages to conservation. LLP intends to use the findings of the review to better adapt our program and LSA tools for the practice of site-based planning and implementation.

6.2.3 Develop monitoring frameworks at sites
Over the past couple of years, all of the demonstration sites have developed and fine-tuned their conceptual models that can now be used to design their monitoring frameworks. We will work closely with these sites as they develop and refine their monitoring frameworks and monitoring plans during the next year, ensuring that sites go beyond concepts - into the practice of project monitoring.

6.2.6. Develop rules of thumb for intervention planning
A number of project staff have highlighted the need for intervention planning and prioritization tools - How to turn research into conservation action; How to build confidence in choice of intervention activity and place; How to take advantage of windows of opportunities, etc. During the last LLP annual meeting, the participants decided that the most useful guidance in determining priorities among interventions would be in the form of rules of thumb, and a small group began to outline some ideas that the CU will expand and make available to staff for review during the next few months.

Results/Outputs:
Technical manuals designed, tested in the field, and distributed in hard copy as well as on CDs and on-line for wider distribution. Monitoring frameworks developed for each site. A 'rules of thumb' document for intervention identification and prioritization and made available to field staff. Guidelines for effective use of LSA tools written up and made available to other site-based conservation practitioners.

Activity 6.3 Catalyze cross-site and cross-organizational learning, and communication

Activity 6.3.1 CMP: leadership, design, writing and audits
CU staff will continue to play a leadership role in the identification, design and implementation of Conservation Measures Partnership activities. We will work closely with Foundations of Success to begin population of causal chains and best-practice indicators in the Strategic Indicator Selection System (StratIS), and will work with all CMP members to identify best-practice tools to use as models for development of eAdaptive-Management modules. Lastly, we will continue to provide technical input into specifying measurable Global Indicators of Biodiversity status.

6.3.2 Local engagement in conservation survey
We will organize and host a 5-day writers retreat for several senior WCS field staff. The retreat is designed to capture their experience integrating local people into the successful practice of landscape scale conservation. This retreat follows-up a more wildly distributed questionnaire that was used to frame the theoretical and practical issues associated with effectively integrating local people into the practice of conservation. The report generated during the writers retreat will be published as a WCS International Program Working Paper and will be made available as a PDF on our website and as a hard-copy document.

6.3.3 Preliminary assessment of the human welfare impacts of establishing national parks
With funding provided by the John D. and Catherine T. MacArthur Foundation and the National Science Foundation, LLP staff in collaboration with the WCS Gabon program, the Gabon National Parks Authority and Boston College conducted a baseline household welfare survey of 1,000 households with traditional claims to natural resources within 6 national parks in Gabon, and an additional 1,000 control households living outside the influence of the parks. This survey is the first of three surveys planned over the next 5 years to assess the income, health, consumption, natural resource use, and family function impacts of establishing protected areas on local families. Results of the baseline survey will be analyzed during FY06 and will allow us to assess the role that wild resources and market access play in the welfare status of families proximal to and distant from the

parks.

Results/Outputs:
Synthesis of results of local engagement in conservation surveys compiled and made available for use. Results of the baseline study will be published in a peer review journal

Activity 6.4 Application of Living Landscapes Program tools beyond core sites

6.4.1 Training workshops in the use of LLP tools
A number of workshops to train field practitioners in the use of conservation tools will be organized and implemented throughout the year. Among others, the socio-economic monitoring specialist and the program director will hold a training workshop for conservation projects as part of the WCS Marine Regional Program Meeting. We have been asked by Dr. Glyn Davies, the Director of Conservation Programs at the Zoological Society of London to run a workshop to train his global staff on the use of LLP conservation planning tools. The 2-3 day training workshop will occur in London in November, 2005. In January of 2006 we will help local and international partners in the Samburu-Laikipia Landscape in north-central Kenya to use LLP conservation planning tools to come to a common vision for wildlife conservation in this complex dry savanna landscape. We also expect to conduct a training of national park management staff in Madagascar in partnership with the WCS Madagascar program, and Conservation International. This training will focus on the use of conceptual models as a basis for strategic site conservation planning. Lastly, we will continue to support adoption of conceptual models and monitoring frameworks by landscape scale projects in: Brazil – Mamiraua, and Piagacu Purus; Peru - Yavari Mari; Venezuela – Caura River; Ecuador – Yasuni, and Bolivia – Gran Chaco. These projects are supported by funds from The Gordon and Betty Moore Foundation.

6.4.2. Technical Manuals
We will continue to make our expseries of technical manuals available to conservation practitioners and decision makers on our website, as hard-copy booklets and on CD. Manuals are available in English, French and Spanish.

Results/Outputs:
Training workshops and symposium planned and held to make available the principles distilled from implementation of the USAID/EGAT funded sites over the past six years to other site-based conservation projects around the world.

Activity 6.5 Ensure coordination and communication services for the program
The program director and program coordinator will meet with staff from the core sites and other WCS large-scale conservation sites to discuss the development of the program, on-the-ground implementation of the Landscape Species Approach, and further development of tools relevant to the approach. Program staff will also meet with collaborators, NGOs, governmental officers, and representatives of other stakeholder groups to promote use of the strategies and tools, to assess their utility, and to determine whether additional tools would be of use.

Throughout the year, the Coordination Unit will assist field staff in completing annual Implementation Plans, reporting on Performance Monitoring forms, and submitting Annual Reports. The program coordinator and other members (as necessary) will attend quarterly USAID/EGAT meetings in Washington DC and will ensure regular reporting and updates to USAID.

Results/Outputs:
The Coordination Unit will serve as a hub for communication regarding the Program among WCS field staff, core sites, current and potential conservation partners and interested members of the general public. Timely preparation and submission of USAID reports.